

Serial No. 10/764,319

- 3 -

60427aka

IN THE ABSTRACT OF THE DISCLOSURE

*Please replace the original Abstract on page 18 with the following replacement Abstract:*

A multi-channel, reconfigurable fiber-coupled Raman instrument uses fiber optic switches for laser and calibration light routing to facilitate automated calibration, diagnosis and operational safety. The system allows wavelength axis calibration on all channels; laser wavelength calibration (including multiple and/or backup laser options); fiber coupling optimization; fault detection/diagnosis; and CCD camera binning setup. In the preferred embodiment, dedicated calibration channels surround data channels on a 2-dimensional CCD dispersed slit image implemented using a unique cabling architecture. This "over/under" calibration interpolation approach facilitates quasi-simultaneous or sequential calibration/data acquisitions. CCD binning between sequential calibration and data acquisitions enables higher density multi-channel operation with tilted images based upon a multiplexed grating configuration. A diamond sample is used as a Raman shift reference for laser calibration, preferably in the form of a small disc sampled with an edge-illuminating probe using two unfiltered fibers.